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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,591	05/14/2001	Meng-Huang Liu	4006-122	6739

7590 11/23/2004  
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EXAMINER

NGUYEN, DANNY

ART UNIT PAPER NUMBER

2836

DATE MAILED: 11/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/853,591

Applicant(s)

LIU ET AL.

Examiner

Danny Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-23 and 25-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-23,25 and 28 is/are allowed.
- 6) ☒ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 10/18/2004 with respect to amended claims 1 and 7 have been considered. In view of these arguments, claim 7 is allowed and claim 1 is moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Voldman (USPN 5,625,280) in view of Walker (USPN 4,887,021).

Regarding claims 1, 4, Voldman discloses an electrostatic discharge (ESD) protection device (fig. 3 and 4), applied to a mixed voltage circuit assembly with a first power supply that has a high voltage source (Vcc) and a low voltage source (Vss) and a second power supply that has a high voltage source (Vdd) and a low voltage source (the common ground Vss), the device comprises an RC controlled circuit subassembly (22 shown in fig. 3), coupled with the mixed voltage circuit assembly, utilizing for substantially controlling the ESD protection device to be ON or OFF, wherein the RC controlled circuit subassembly comprising a resistance (resistor 41 shown in fig. 4), one end of the resistance being coupled to the high voltage source of the first power supply (Vcc); and a capacitor (capacitor 42), one end of the capacitor coupled to the low

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voltage source of the second power supply ( $V_{ss}$ ) and the other end coupled to the resistance, a first transistor (NMOS 31), the drain coupled to the first power supply ( $V_{cc}$ ) and the source coupled to the second power supply ( $V_{dd}$ ), and the gate is coupled to the RC controlled circuit (22) for providing current route between the first power supply ( $V_{cc}$ ) and the second power supply ( $V_{dd}$ ) on an ESD event (e.g. col. 5 and 6, lines 66-10). Voldman does not disclose the first transistor is PMOS as claimed. Walker teaches that NMOS transistor replaces PMOS transistor (col. 9, lines 39-42). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the NMOS transistor of Voldman to use the PMOS transistor as disclosed by Walker because the PMOS transistor provides small layout area and low power consumption.

Regarding claim 3, Voldman and Walker disclose the values of resistor (31) and the capacitor (42) of the RC circuit (22) are chosen to provide a predetermined time constant (col. 5, lines 48-50), but Voldman and Walker do not disclose that the time constant of the RC circuit is about 0.1 to 10 microsecond as claimed. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the values of the resistor and capacitor to any desired value as long as it compatible with the requirements of other elements in the circuit in order to properly performs the delay function to protect ESD event. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Voldman in view of Walker, and Ker et al. Voldman and Walker disclose all limitations of claims 1 and 4 as discussed above, but Voldman and Walker do not disclose the PMOS transistor as claimed. Ker discloses an ESD protection device wherein the first PMOS transistor is further located in a first N-well and the N-well is coupled to power supply (See fig. 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the PMOS transistor of Voldman AND Walker to incorporate the PMOS transistor located in N-well as disclosed by Ker in order to reduce cost and layout area.

#### **Allowable Subject Matter**

4. Claims 7—23 and 25-28 are allowed

Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 6 discloses, inter alia, an electrostatic discharge protection device, applied to a mixed voltage circuit assembly, the device comprises a RC controlled circuit subassembly and a first transistor wherein the RC Controlled circuit comprises a resistance and a capacitance and further comprises a second transistor in a specific configuration.

The references of record do not teach or suggest the aforementioned limitation, nor would it be obvious to modify those references to include such limitation.

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Danny Nguyen whose telephone number is (571)-272-2054. The examiner can normally be reached on Mon to Fri 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571)-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DN

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11/16/2004

*Stephen W. Jackson*  
11-17-04

STEPHEN W. JACKSON  
PRIMARY EXAMINER